AMENDMENTS TO THE CLAIMS

Please cancel Claims 1 through 68 without prejudice to or disclaimer of the subject matter recited therein.

Please add Claims 69 through 76 as follows:

1-68. (Cancelled)

69. (New) An optical system comprising:

an optical element including (a) a first optical component for forming an intermediate image of an object and having a refractive surface of rotationally asymmetric shape and at least one reflective surface, and (b) a second optical component for forming a final image with light from the intermediate image and having a refractive surface of rotationally asymmetric shape and at least one reflective surface; and

an aperture stop,

wherein the following relation is satisfied:

$$\left|\frac{D \cdot f1}{S \cdot AR1}\right| < 0.1$$

where D is a size of a noise source near the intermediate image, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an

azimuth at the maximum focal length of said first optical component being defined as ξ, S is an on-axis astigmatic difference at the intermediate image position, and AR1 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth ξ, at the time an aperture of said aperture stop is maximized.

70. (New) An optical apparatus according to Claim 69, wherein the following relation is satisfied:

$$D = 35\ \mu m$$

71. (New) An optical system comprising:

an optical system according to Claim 69; and

an image pickup device,

wherein the final image is formed on a light receiving surface of said image pickup device by said optical system.

72. (New) An optical system comprising:

an optical element including (a) a first optical component for forming an intermediate range of an object and having a refractive surface of rotationally asymmetric shape and at least one reflective surface, and (b) a second optical component for forming a final image with light from the intermediate image and having a refractive surface of rotationally asymmetric shape and at least one reflective surface; and

an aperture stop,

wherein the following relation is satisfied:

$$\left|\frac{D \cdot f1}{S \cdot AR2}\right| < 0.3$$

where D is a size of a noise source near the intermediate image, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as ξ, S is an on-axis astigmatic difference at the intermediate image position, and AR2 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth ξ, at the time an aperture of said aperture stop is minimized.

73. (New) An optical apparatus according to Claim 72, wherein the following relation is satisfied:

$D = 35\ \mu m$

74. (New) An image pickup apparatus comprising:

an optical system according to Claim 72; and

an image pickup device,

wherein the final image is formed on a light receiving surface of said image pickup device by said optical system.

75. (New) An image pickup apparatus comprising:

an optical system including (a) a first optical component for forming an intermediate image of an object, (b) a second optical component for forming a final image with light from the intermediate image, and (c) an aperture stop,

wherein at least one of said first optical component and said second optical component comprises an off-axial curved surface, and wherein the final image is formed on a light receiving surface of an image pickup device by said optical system, and wherein the following relation is satisfied:

$$\left| \frac{5b \cdot f1}{|\beta| \cdot S \cdot AR1} \right| < 0.1$$

where b is a minimum resolution settled by the image pickup device, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as ξ, S is an on-axis astigmatic difference at the intermediate image position, β is an image magnification of said second optical component to the azimuth ξ in the vertical direction, and AR1 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth ξ at the time an aperture of said aperture stop is maximized.

76. (New) An image pickup apparatus comprising:

an optical system including (a) a first optical component for forming an intermediate image of an object, (b) a second optical component for forming a final image with light from the intermediate image, and (c) an aperture stop,

wherein at least one of said first optical component and said second optical component comprises an off-axial curved surface, wherein the final image is formed on a light receiving surface of an image pickup device by said optical system, and wherein the following relation is satisfied:

$$\left| \frac{5b \cdot f1}{|\beta| \cdot S \cdot AR2} \right| < 0.3$$

where b is a minimum resolution settled by the image pickup device, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as ξ, S is an on-axis astigmatic difference at the intermediate image position, β is an image magnification of said second optical component to the azimuth ξ in the vertical direction, and AR2 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth ξ at the time an aperture of said aperture stop is minimized.